Trend Study 1-13-01

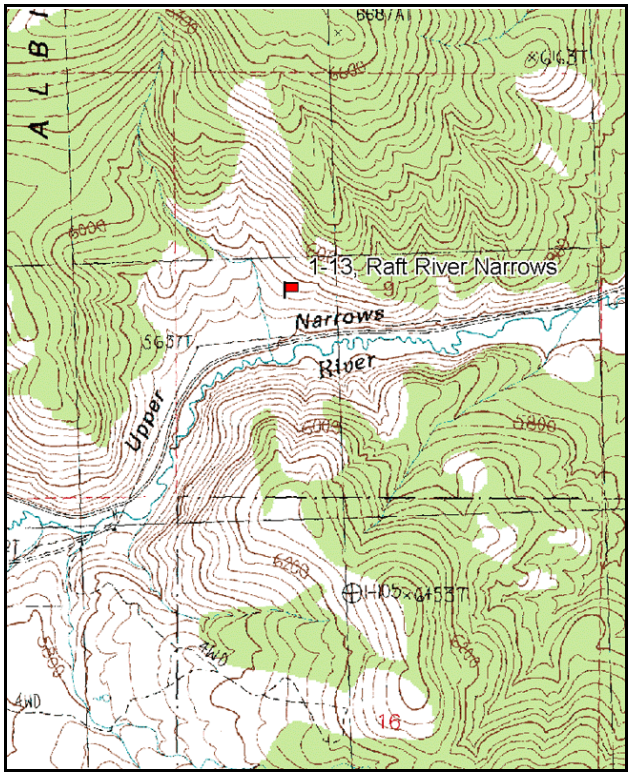
Study site name: Raft River Narrows . Vegetation type: Big Sagebrush .

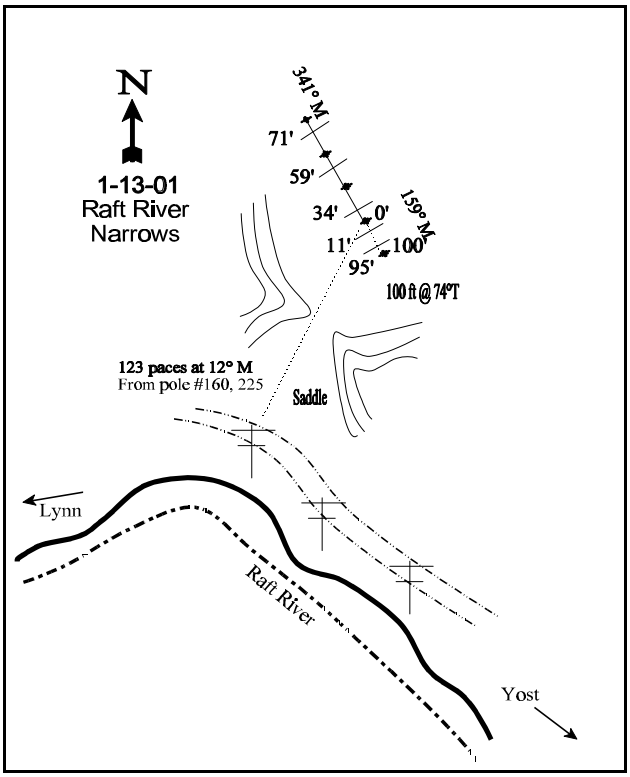
Compass bearing: frequency baseline 160 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From Lynn proceed to the bridge over the Raft River just before the Upper Narrows. Proceed east 0.95 miles from the bridge to a set of double power poles (#'s 160 and 225). From the northernmost pole, walk 123 paces at 13 degrees magnetic, to the 0-foot stake of the frequency baseline, marked with browse tag #7917. The bearing of the baseline is 160 degrees magnetic. The rest of the baseline runs 341 degrees magnetic from the 0 foot baseline stake.





Map Name: Buck Hollow, Utah-Idaho Diagrammatic Sketch

Township 14N , Range 16W , Section 9 UTM 4647835 N, 276805 E

DISCUSSION

Trend Study No. 1-13

The Raft River Narrows study samples one of the more unique sites on the herd unit. Located on the north side of the Raft River Narrows, the site was thought to be critical deer winter range subject to perhaps the most intense browsing use seen on the unit in 1984. It is within the big sagebrush-grass range type and is located on a moderately steep (30% to 35%) southwest facing slope at 5,800 feet elevation. The area is in the Junction Creek allotment which is grazed by 589 cattle in the spring and fall. Cattle were observed grazing along the river bottom when the transect was put in 1984, but no sign of livestock grazing was noted on the steeper slopes. A pellet-group transect read on site in 2001 estimated 11 deer days use/acre (28 deer days use/ha). There has been no cow use noted on the site due to the steep slope. Part of the site was burned in 2000 as part of a back fire that was intended to stop a wildfire from crossing Raft River Canyon. As a result, the first 100 feet of the study site baseline was burned.

Soils are rocky on the surface and throughout the profile. Soil texture is a sandy clay loam. Soil reaction is moderately alkaline (8.2 pH) with a low amount of phosphorus (3.6 ppm), where values lower than 10 ppm can limit normal plant growth and development. The parent material appears to be metamorphic rock, perhaps a granite schist. Soil effective rooting depth is fairly shallow at 9 inches. However, the underlying parent material must contain numerous fractures to allow the deeper rooted Wyoming big sagebrush to establish. Erosion, although ongoing, is not excessive. A uniform litter cover composed primarily of dead cheatgrass seems effective in enhancing penetration of water into the soil and thus reducing runoff. The erosion condition was classified as stable in 2001.

Browse composition is dominated by Wyoming big sagebrush which contributed 63% of the browse cover in 1996 increasing to 87% in 2001. Basin big sagebrush dominates the flat areas down slope where the soil is significantly deeper. The sagebrush were very heavily hedged in 1984 with 92% of the population showing heavy use. Many of these shrubs displayed a club-like growth form due to persistent heavy use. During the 1990 reading, density and percent decadence remained similar, yet use was mostly light to moderate. In 1996, the original baseline was lengthened from 100 ft to 400 ft. This increased sample estimated a much larger density for Wyoming big sagebrush at 21,340 plants/acre, 61% of which were young plants. Seedlings were also extremely numerous (14,200 plants/acre). There has been a large die-off of the young plants since 1996 with a decrease of more the 75% (13,080 to 3,300 plants/acre). The percent young within the population was still moderately high at 47% in 2001. The Wyoming big sagebrush population is currently (‘01) estimated at 7,020 plants/acre which will likely level off at a lower density in the future.

Greasewood is also found in greater numbers at the bottom of the hill, but some plants are encountered up-slope. Narrowleaf low rabbitbrush was initially very numerous, however it has declined in density since 1996 (6,360 plants/acre in 1996, to 1,120 plants/acre in 2001). Other shrubs occasionally seen include shadscale, broom snakeweed, threadleaf rubber rabbitbrush, and greasewood. With respect to trend, it will be important to monitor age and form class structure of the dominant sagebrush and low rabbitbrush.

The herbaceous understory is depleted to the point where cheatgrass comprises the most significant component, 63% of the grass cover. Currently (‘01) it provides 87% of the grass cover. Perennial grasses are sparse and consist of isolated clumps of bluebunch wheatgrass, bottlebrush squirreltail, needle-and-thread, and Sandberg bluegrass. Perennial forbs are even more rare.

1984 APPARENT TREND ASSESSMENT

The remaining soil on this site is protected by four factors. These include sagebrush crowns, cheatgrass litter, rock and erosion pavement. Although these would not normally be adequate to prevent widespread runoff and erosion, there is little evidence that such has occurred. Apparent trend is therefore stable, but could easily decline. Vegetative trend appears down. The intensity of deer use has had a significant effect, especially on the sagebrush. The existing stand appears to be gradually thinning and being replaced by less desirable browse plants.

1990 TREND ASSESSMENT

The soil is easily disturbed on the 30-35% slope and erosion potential is moderately high. However, protective ground cover is sufficient to control erosion. Trend for soil is up slightly due to a reduction in bare ground and an increase in basal vegetative cover. Density and age class structure of the key browse species (Wyoming big sagebrush) appears stable. Utilization is light to moderate and percent decadency has declined slightly. Narrowleaf low rabbitbrush decreased in density. Although the data shows slight increases in the sum of nested quadrat frequency for perennial grasses and forbs, the understory remains in a depleted and poor condition with very high densities of cheatgrass.

TREND ASSESSMENT
soil - up slightly (4)
browse - stable (3)
herbaceous understory - slightly upward but still poor (4)

1996 TREND ASSESSMENT

Ground cover conditions appear fairly stable. Since 1990, percent bare ground increased due a reduction in cover of pavement. Ground cover numbers from 1996 are very similar to 1984 data. Data from 1990, show increased pavement and less bare ground. Some of the changes could be expected because of modifications in methodology. Trend for the Wyoming big sagebrush is up. Density increased while heavy use and decadency declined. Seedlings and young are abundant indicating a dynamic reproductive potential. Some of the change in density may be partially due to the lengthening of the baseline which increased the area sampled. Density of mature plants increased from 1,133 plants/acre to 7,620. Vigor is good on most plants. Trend for the undesirable narrowleaf low rabbitbrush appears stable. Trend for the herbaceous understory appears slightly up. Sum of nested frequency for perennial grasses and forbs increased since 1990. Annual cheatgrass is still dominant providing 63% of the grass cover. Forbs are nearly absent but frequency has increased.

TREND ASSESSMENT
soil - stable (3)
browse - up (5)
herbaceous understory - slightly up but in poor condition (4)

2001 TREND ASSESSMENT

Ground cover conditions appear stable. The ratio of bare soil to protective cover has seen little change since 1996. Trend for Wyoming big sagebrush is considered stable even with the decrease in density where most of the individuals were young plants (down from 13,080 to 3,300 plants/acre). Utilization is now entirely classified as light. Percent decadence is low at only 7% and vigor is good on almost all plants. Trend for the undesirable narrowleaf low rabbitbrush now appears at its lowest density since 1984. Trend for the herbaceous understory appears slightly down. Sum of nested frequency for perennial grasses is stable but

frequency of perennial forbs decreased substantially since 1996. Annual cheatgrass is becoming more dominant. It has increased significantly in nested frequency and it currently contributes 87% of the grass cover and 75% of the total herbaceous cover.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - slightly down and in poor condition (2)

HERBACEOUS TRENDS --
Herd unit 01 , Study no: 13

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron spicatum	8	10	12	19	3	8	5	7	.31	.28
G	Bromus tectorum (a)	-	-	a287	b334	-	-	92	98	3.48	13.07
G	Oryzopsis hymenoides	5	8	11	9	2	5	5	5	.07	.45
G	Poa secunda	a3	b35	b44	b55	2	18	18	25	.68	.53
G	Sitanion hystrix	16	13	35	14	10	8	17	7	.56	.11
G	Stipa comata	a-	a-	b16	b17	-	-	7	6	.31	.64
G	Vulpia octoflora (a)	-	-	11	-	-	-	5	-	.07	-
Total for Annual Grasses		0	0	298	334	0	0	97	98	3.55	13.07
Total for Perennial Grasses		32	66	118	114	17	39	52	50	1.94	2.02
Total for Grasses		32	66	416	448	17	39	149	148	5.50	15.10
F	Alyssum alyssoides (a)	-	-	11	5	-	-	4	2	.02	.01
F	Arabis spp.	-	3	4	-	-	1	3	-	.01	-
F	Astragalus beckwithii	a6	a4	b19	a3	2	2	10	1	.22	.00
F	Castilleja chromosa	-	-	5	1	-	-	2	1	.06	.00
F	Caulanthus crassicaulis	-	-	2	-	-	-	1	-	.03	-
F	Chaenactis douglasii	a1	a16	b36	a4	1	8	17	2	.16	.03
F	Collinsia parviflora (a)	-	-	4	-	-	-	2	-	.01	-
F	Cryptantha spp.	-	-	9	-	-	-	4	-	.04	-
F	Delphinium nuttallianum	-	-	-	1	-	-	-	1	-	.00
F	Descurainia pinnata (a)	-	-	a23	b100	-	-	14	45	.07	1.49
F	Eriogonum caespitosum	-	3	5	-	-	1	3	-	.04	-
F	Erigeron pumilus	a1	a-	b11	ab6	1	-	7	2	.10	.03
F	Gayophytum ramosissimum (a)	-	-	-	3	-	-	-	1	-	.00
F	Gilia spp. (a)	-	-	a7	b106	-	-	4	45	.02	.43
F	Lappula occidentalis (a)	-	-	15	26	-	-	7	14	.03	.12
F	Lactuca serriola	-	-	1	11	-	-	1	5	.00	.10
F	Machaeranthera spp	-	-	3	-	-	-	1	-	.00	-

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Oenothera caespitosa	-	-	5	-	-	-	2	-	.03	-
F	Phlox hoodii	5	5	9	6	4	3	6	2	.15	.06
F	Tragopogon dubius	-	-	1	-	-	-	1	-	.00	-
Total for Annual Forbs		0	0	60	240	0	0	31	107	0.15	2.05
Total for Perennial Forbs		13	31	110	32	8	15	58	14	0.89	0.24
Total for Forbs		13	31	170	272	8	15	89	121	1.05	2.29

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 01 , Study no: 13

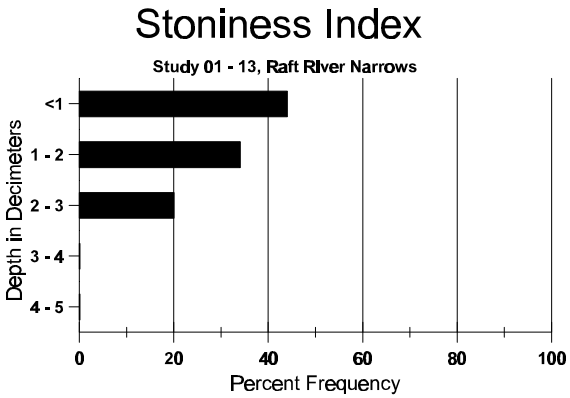
Type	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Artemisia tridentata wyomingensis	96	60	14.67	9.76
B	Atriplex confertifolia	2	3	-	-
B	Chrysothamnus viscidiflorus stenophyllus	91	37	7.21	.36
B	Leptodactylon pungens	1	0	-	-
B	Opuntia spp.	16	8	1.12	.41
B	Sarcobatus vermiculatus	2	2	.15	.63
Total for Browse		208	110	23.16	11.17

BASIC COVER --
Herd unit 01 , Study no: 13

Cover Type	Nested Frequency		Average Cover %			
	'96	'01	'84	'90	'96	'01
Vegetation	330	342	2.00	5.50	30.90	29.56
Rock	317	280	18.25	24.50	26.53	21.75
Pavement	320	325	10.50	31.00	8.90	19.43
Litter	378	299	56.50	31.75	29.68	21.09
Cryptogams	146	128	.50	2.25	2.19	3.12
Bare Ground	250	246	12.25	5.00	12.53	10.47

SOIL ANALYSIS DATA --
Herd Unit 01, Study no: 13, Raft River Narrows

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
8.6	59.6 (7.8)	8.2	46.5	23.4	30.0	1.7	3.6	441.6	1.9



PELLET GROUP FREQUENCY --
Herd unit 01 , Study no: 13

Type	Quadrat Frequency '96	Quadrat Frequency '01
Rabbit	4	6
Deer	15	2

Pellet Transect	
Pellet Groups per Acre ⁄01	Days Use per Acre (ha) ⁄01
17	N/A
148	11 (28)

BROWSE CHARACTERISTICS --
Herd unit 01 , Study no: 13

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tripartita tripartita																		
M	84	-	-	5	-	-	-	-	-	-	5	-	-	-	166	13	17	5
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
D	84	-	-	1	-	-	-	-	-	-	1	-	-	-	33			1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'84	00%	100%	00%
'90	00%	00%	00%
'96	00%	00%	00%
'01	00%	00%	00%

Total Plants/Acre (excluding Dead & Seedlings)			%Change
'84	199	Dec:	17%
'90	0		0%
'96	0		0%
'01	0		0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata wyomingensis																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	2	-	-	-	-	-	-	-	-	2	-	-	-	66			2
	96	694	-	-	16	-	-	-	-	-	710	-	-	-	14200			710
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Y	84	-	1	3	-	-	-	-	-	1	4	-	1	-	166			5
	90	5	-	-	-	-	-	-	-	-	4	-	1	-	166			5
	96	654	-	-	-	-	-	-	-	-	654	-	-	-	13080			654
	01	164	-	-	1	-	-	-	-	-	165	-	-	-	3300			165
M	84	-	3	30	-	-	-	-	-	-	32	1	-	-	1100	26	42	33
	90	22	7	3	2	-	-	-	-	-	29	-	5	-	1133	27	31	34
	96	75	305	1	-	-	-	-	-	-	379	1	-	1	7620	24	37	381
	01	162	-	-	-	-	-	-	-	-	161	-	1	-	3240	23	27	162
D	84	-	1	37	-	1	-	-	-	1	34	-	4	2	1333			40
	90	31	4	-	1	-	-	-	-	-	27	-	4	5	1200			36
	96	20	11	-	1	-	-	-	-	-	28	-	-	4	640			32
	01	22	1	-	1	-	-	-	-	-	14	1	-	9	480			24
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	500			25
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	1860			93

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	08%	92%	09%	- 4%
'90	15%	04%	20%	+88%
'96	30%	.09%	.46%	-67%
'01	.28%	00%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	2599	Dec:	51%
	'90	2499		48%
	'96	21340		3%
	'01	7020		7%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Atriplex confertifolia																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	1	-	-	-	-	-	-	-	-	1	-	-	-	33	9	9	1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	13	21	1
	01	2	-	-	1	-	-	-	-	-	3	-	-	-	60	10	13	3
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	+ 0%
'90	00%	00%	00%	+18%
'96	00%	00%	00%	+33%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	33	Dec:		0%
'90	33			100%
'96	40			0%
'01	60			0%

Chrysothamnus nauseosus consimilis																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	36	40	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	32	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'84	0	Dec:	-
'90	0		-
'96	0		-
'01	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus stenophyllus																		
S	84	2	-	-	-	-	-	-	-	-	2	-	-	-	66			2
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	96	29	-	-	3	-	-	-	-	-	32	-	-	-	640			32
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	37	2	-	-	-	-	-	-	-	39	-	-	-	1300			39
	90	12	-	-	3	-	-	-	-	-	15	-	-	-	500			15
	96	63	-	-	8	-	-	-	-	-	71	-	-	-	1420			71
	01	2	-	-	1	-	-	-	-	-	3	-	-	-	80			4
M	84	26	45	6	1	-	-	-	-	-	78	-	-	-	2600	7	9	78
	90	97	-	-	19	-	-	7	-	-	117	-	6	-	4100	8	10	123
	96	180	2	-	13	-	-	-	-	-	195	-	-	-	3900	12	19	195
	01	19	-	-	6	-	-	2	-	-	27	-	-	-	540	8	11	27
D	84	26	55	21	1	-	-	-	-	-	98	1	2	2	3433			103
	90	58	-	-	4	-	-	-	-	-	53	-	6	3	2066			62
	96	37	11	-	4	-	-	-	-	-	39	-	-	13	1040			52
	01	20	-	-	5	-	-	-	-	-	8	-	-	17	500			25
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	660			33

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	46%	12%	02%	- 9%
'90	00%	00%	08%	- 5%
'96	04%	00%	04%	-82%
'01	00%	00%	30%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	7333	Dec:	47%
	'90	6666		31%
	'96	6360		16%
	'01	1120		45%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Leptodactylon pungens																		
Y	84	15	-	-	-	-	-	-	-	-	15	-	-	-	500			15
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	3	-	-	-	-	-	-	-	-	3	-	-	-	100	3	2	3
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	9	10	1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'84	00%	00%	00%
'90	00%	00%	00%
'96	00%	00%	00%
'01	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	600	Dec:	-
	'90	0		-
	'96	20		-
	'01	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Opuntia spp.																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	1	-	-	1	-	-	-	33			1
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	1	-	-	-	-	-	5	-	-	6	-	-	-	200			6
	96	1	-	-	1	-	-	-	-	-	2	-	-	-	40			2
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	84	5	-	-	-	-	-	-	-	-	5	-	-	-	166	6	7	5
	90	7	-	-	2	-	-	-	-	-	9	-	-	-	300	5	9	9
	96	10	-	-	3	-	-	-	-	-	13	-	-	-	260	4	14	13
	01	3	-	-	2	-	-	1	-	-	6	-	-	-	120	4	9	6
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	2	-	-	-	-	-	-	-	-	1	-	-	1	40			2
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	140			7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	+67%
'90	00%	00%	00%	-32%
'96	00%	00%	06%	-53%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	166	Dec:	0%
	'90	500		0%
	'96	340		12%
	'01	160		13%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Sarcobatus vermiculatus																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33	35	35	1
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40	36	62	2
	01	-	-	-	1	-	-	-	-	-	1	-	-	-	20	-	-	1
D	84	-	1	-	-	-	-	-	-	-	1	-	-	-	33			1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	100%	00%	00%	+ 0%
'90	00%	00%	00%	+18%
'96	00%	00%	00%	+ 0%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	33	Dec:	100%
	'90	33		0%
	'96	40		0%
	'01	40		0%